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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/420,275	10/18/1999	MIGUEL DAJER	9-3-29	2584

7590 11/18/2003

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EXAMINER

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ART UNIT

PAPER NUMBER

2681

15

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.



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MAILED

NOV 18 2003

Technology Center 2600

Paper No. 15

Application Number: 09/420,275

Filing Date: October 18, 1999

Appellant(s): Dajer et al.

Joseph B. Ryan

For Appellant

EXAMINER'S ANSWER

Art Unit: 2681

This is in response to the appeal brief filed on September 5, 2003.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 1-27 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *ClaimsAppealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

Art Unit: 2681

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

6,400,966

Andersson et al.

6-2002

(10) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-5, 7-12, 14-15, and 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Andersson et al. (US Patent Number 6,400,966).

Regarding **claims 1 and 17**, Andersson et al. discloses a base station (e.g. 200) for use in a wireless communication system; see Figures 2 and 3. The base station includes a plurality of channel unit boards (e.g. BBTX-1, BBTX-2, ... BBTX-N) each including a plurality of channel elements (illustrated in Figure 9A as the “boxes” labeled “Carrier 1 to N1”, each containing “Resource 1 to M₆” in combination with “COMB”)

Art Unit: 2681

as depicted in Figures 9-12. A given channel unit board (e.g. BBTX-1) includes a multiplexer (MUX) which is operative to implement multi-carrier / multi-selector channel pooling by assigning a given one of the channel elements of that board to any one of the multiple carriers (e.g. Carrier 1, Carrier 2, ... Carrier N1, etc.) of the system, as depicted in Figures 4B, 7B and 9A. See the abstract, column 5, lines 1-12 & 54-63, column 6, lines 34-51, column 8, line 6 to column 10, line 22.

With respect to **claims 8, 15, and 18**, same explanation shown above for *claim 1* is applied. Andersson et al. discloses everything claimed. In addition, different channel elements of a channel unit board are “controllably assigned” to different carriers of the system; see column 10, lines 13-22 and Figures 4B, 7B, 9A, etc.

Regarding **claims 2-5 and 7**, Andersson et al. discloses everything claimed as applied above (see *claim 1*). In addition, the channel unit boards generate a set of digital in-phase (I) and quadrature (Q) signals for each of the plurality of carriers; Figure 4B & 9A. The multiplexer (MUX) is operative to connect a given one of the channel elements to an I and Q signal bus; Figure 9A. The I and Q signals from different channel unit boards are combined using a “Combiner”; Figure 11.

N channel elements can be assigned to N carriers in N sectors; column 10, lines 13-22 and the Figures. The disclosed wireless communication system is a CDMA system operating in either IS-95-A, B or C, with or without OTD, MC CDMA-2000 (W-CDMA), or UMTS; see column 1, line 58 to column 2, line 25, and column 11, lines 7-12.

Art Unit: 2681

With respect to **claims 9-12 and 14**, the same explanation shown above for *claims 2-5 and 7* is applied. Andersson et al. discloses everything claimed.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 6, 13, 16, and 19-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersson et al. (US Patent Number 6,400,966) in view of the knowledge generally available to one of ordinary skill in the art.

Regarding **claims 6 and 13**, Andersson et al. discloses everything claimed as applied above (see *claims 1 and 8*). However, Andersson et al. fails to specifically disclose that the assignment step is performed by a control computer.

It should be noted that the assignment step is inherently performed by some kind of “controller”. On the other hand, computers are conventionally used as controllers for the known advantage of faster and more accurate performance.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to perform the assignment step by a control computer because of the advantage of faster and more accurate performance.

Art Unit: 2681

With respect to **claim 16**, it is rejected for the same reasons explained for *claim 1 and 6*.

As to **claims 19-23**, they are an obvious variation form of *claims 1-18*. Therefore, they are rejected for the same reasons shown above. For clarification: the above explained multiplexer (MUX) reads as the claimed “signal combiner element” and is “controllable” by the explained “control computer”. Figure 9A exhibits a set of BBTXs each including one MUX. These MUXs in combination read as the claimed “set of controllable signal combiners”. For example, the circuitry “TRX-RF” that contains the adder (Σ) depicted in Figure 12 reads as the claimed “multi-carrier combiner”.

Claims 24-27 define a receiver sub-unit of the claimed base station, while *claims 19-23* define a transmitter sub-unit of the claimed base station. *Claims 24-27* are at least obvious in view of *claims 19-23* because every transmission needs and implies a reception. Nevertheless, Andersson et al. discloses both the transmitter (Figures 9-12) and the receiver (Figures 4-8) sub-units of the base station (Figure 3). The same explanation found above is applied herein. The demultiplexer (DEMUX) shown in Figures 4-8 reads as the claimed “controllable selector”.

(11) Response to Argument

APPELLANT'S ARGUMENTS:

① With respect to **claim 1** appellant argues that the limitation “each of at least a subset of the channel elements of at least one of the channel unit boards is assignable to each of a plurality of carriers of the system” is not met by Andersson et al. (see Appeal Brief, page 5, last paragraph). Appellant explains the term “at least a subset of the channel elements” means any subset of the total set of channel elements, or in other words, one or more of the channel elements (see Appeal Brief, page 6, paragraph before the last paragraph). Appellant argues that, therefore, “this limitation in effect requires that there be at least one

Art Unit: 2681

channel element of at least one of the channel unit boards that is assignable to each of multiple carriers of the system" (see Appeal Brief, page 6, last paragraph). Appellant argues the same with respect to *claims 2-3, 6-10, 13-19, 21, 23-25 and 27*.

② With respect to *claims 4 and 11* appellant argues that I and Q signals generated using a particular arrangement is not taught or suggested by Andersson et al. (see Appeal Brief, page 7, fourth paragraph).

③ With respect to *claims 5, 12, 22 and 26* appellant argues that the particular arrangement of up to N carriers is not shown or suggested by Andersson et al. (see Appeal Brief, page 7, fifth paragraph, and page 10, second paragraph).

④ With respect to *claim 20* appellant argues that the set of controllable signal combiners and multi-carrier combiner are not taught or suggested by Andersson et al. (see Appeal Brief, page 10, first paragraph).

RESPONSE TO APPELLANT'S ARGUMENTS:

In response to appellant's argument ① above, it should be noted that according to appellant's definition of "subset" and in harmony to its accepted meaning (see PTO-892 attached to the Advisory action mailed on August 27, 2003, Paper No. 13), the term "subset" is one or more, but also includes all of the elements of the total set, as well as none of them. All of these options in the alternative form. Appellant argues a particular instance, that is, "at least one". However, the rejection is based on the alternative "at least all" because it falls within the scope of the claimed and defined "subset".

Figure 9A of Andersson et al. reads on the claim as follows: The plurality of channel unit boards are BBTX-1 to BBTX-N. Each one includes a plurality of channel elements that are illustrated in Figure 9A as the "boxes" labeled "Carrier 1 to N1", each containing "Resource 1 to M₆" in combination with "COMB". The plurality of channel elements provide processing operations for signals assigned to multiple carriers

Art Unit: 2681

(Carrier 1 to N1) of the communication system. Each of at least a subset (all those boxes inside BBTX-1, but excluding MUX) of the channel elements of at least one channel unit board (BBTX-1, for example) is assignable to each of a plurality of carriers (Carrier 1 to N1) of the system.

In response to appellant's argument ② above, it should be noted that as explained in the final Office action rejection, Andersson et al. does teach I and Q signals generated using a particular arrangement, as claimed, as shown in Figures 4B, 7B and 9A (which reads "I, Q to TRXTX part"). As illustrated, the figures show single line buses, but it is apparent that each bus contains separate I and Q signals. See column 9, line 65. It should be noted that the present disclosure uses the same nomenclature and addresses I and Q signals in the same manner that Andersson et al. does. For example, Figures 4-6 of the present disclosure show single line buses (Figure 4 far right "I/Q buses from other channel cards"; Figure 5 bottom left "Carrier N I/Q" and "Upstream I/Q bus"; Figure 6A "N Carrier/sector I/Q Bus"; etcetera) wherein each bus contains separate I and Q signals.

In response to appellant's argument ③ above, it should be noted that the arguments are again directed toward the definition of the term "subset". Andersson et al. meets that claim language as follows: each of at least a subset (at least one; e.g. BBTX-1) of the channel unit boards includes a total of N channel elements (labeled "Carrier 1 to N1", each one containing "Resource 1 to M₆" in combination with "COMB"), and each of the channel elements may be assigned to one of up to N carriers (e.g. only one; Carrier 1) of the system.

In response to appellant's argument ④ above, it should be noted that Figures 9A and 12 are related as depicted in Figure 3. Figure 9A is component 216 of which output is input to component 202 depicted as Figure 12. The combination of all multiplexers (MUX) of each BBTX (1 to N) reads as the claimed "set of

Art Unit: 2681

controllable signal combiners". The circuitry "TRX-RF", that contains the adder (Σ), depicted in Figure 12 reads as the claimed "multi-carrier combiner". Thus, the multi-carrier combiner includes a plurality of inputs, shown in Figure 12 as Frequency 1 and 2 each comprising I and Q, and an additional input, shown in Figure 12 as "Channel Selection" input bus.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Conference held on November 7, 2003.

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